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ABSTRACT

Since 1960, the U.S. Department of Agriculture has provided estimates of expenditures on children from birth through age 17. This technical report presents the most recent estimates for husband-wife and single-parent families, using data from the 1990-92 Consumer Expenditure Survey, updated to 1997 dollars using the Consumer Price Index. Data and methods used in calculating annual child-rearing expenses are detailed. Estimates are provided for major components of the budget by age of child, family income, and region of residence. For the overall United States, child-rearing expense estimates ranged between $8,060 and $9,170 for a child in a two-child, married-couple family in the middle income group. Adjustment factors for number of children in the household are provided. The report notes that findings should be of use in developing state child support guidelines and foster care payments as well as in family educational programs. (JPB)

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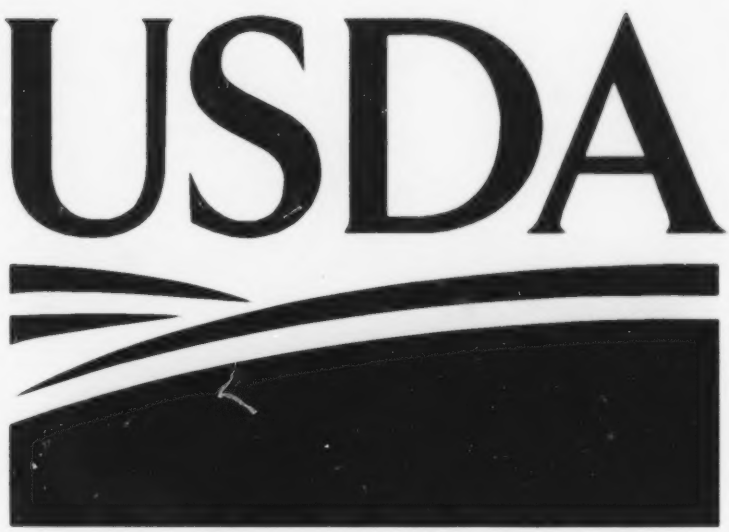
CENTER FOR NUTRITION POLICY AND PROMOTION

# Expenditures on Children by Families

## 1997 Annual Report

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## Abstract

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Since 1960, the U.S. Department of Agriculture has provided estimates of expenditures on children from birth through age 17. This technical report presents the most recent estimates for husband-wife and single-parent families using data from the 1990-92 Consumer Expenditure Survey, updated to 1997 dollars using the Consumer Price Index. Data and methods used in calculating annual child-rearing expenses are described. Estimates are provided for major components of the budget by age of child, family income, and region of residence. For the overall United States, child-rearing expense estimates ranged between $8,060 and $9,170 for a child in a two-child, married-couple family in the middle income group. Adjustment factors for number of children in the household are also provided. Results of this study should be of use in developing State child support guidelines and foster care payments as well as in family educational programs.



Keywords: children, expenditures



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# Expenditures on Children by Families

# 1997 Annual Report

UNITED STATES DEPARTMENT OF AGRICULTURE
Miscellaneous Publication Number 1528-1997

# Executive Summary

Since 1960, the U.S. Department of Agriculture (USDA) has provided estimates of annual expenditures on children from birth through age 17. This technical report presents the 1997 estimates for husband-wife and single-parent families. The 1997 figures for husband-wife families for the Nation as a whole are shown in table ES-1. Other tables are shown at the end of the report.

For husband-wife families, estimates are for three income groups and for single-parent families, two income groups. To partially adjust for price differentials and varying patterns of expenditures, estimates are also provided for husband-wife families in urban areas in four regions (West, Northeast, South, and Midwest) and for rural areas throughout the United States, as well as for the United States overall. For single-parent families, estimates are provided only for the United States because of sample size limitations. Expenditures on children are estimated for the major budgetary components: Housing, food, transportation, clothing, health care, child care and education, and miscellaneous goods and services.

## Methods

Data used to estimate expenditures on children are from the 1990-92 Consumer Expenditure Survey--Interview portion (CE). Administered by the Bureau of Labor Statistics (BLS), U.S. Department of Labor, this survey is the most comprehensive source of information on household expenditures available at the national level. The sample consists of 12,850 husband-wife households and 3,395 single-parent households and was weighted to reflect the U.S. population of interest, using BLS weighting methods.

Multivariate analysis was used to estimate household and child-specific expenditures, controlling for income level, family size, and age of the younger child so estimates could be made for families with these varying characteristics (regional estimates were also derived by controlling for region). Households with two children were selected as the base since this was the average number of children in two-parent families.

Estimated household and child-specific expenditures were allocated among family members. Since the estimated expenditures for clothing, child care, and education only apply to children (adult-related expenses for these items were excluded), allocations of these expenses were made by dividing the estimates equally among the children.

The 1994 food plans of USDA were used to allocate food expenses among family members. These plans, derived from a national food consumption survey, show the share of food expenses attributable to individual family members by age and household income level. These member food budget shares were applied to estimated 1990-92 household food expenditures to determine food expenses on a child. Similarly, health care expenses were allocated to each family member based on budget share data from the 1987 National Medical Expenditure Survey. This survey contains data on the proportion of health care expenses attributable to individual family members. These member budget shares for health care were applied to estimated 1990-92 household health care expenditures to determine expenses on a child.

Unlike food and health care, no research base exists for allocating estimated household expenditures on housing, transportation, and other miscellaneous goods and services among family members. USDA uses the per capita method in allocating these expenses; the per capita method allocates expenses among household members in equal proportions. A marginal cost method, which assumes that expenditures on children may be measured as the difference in total expenses between couples with children and equivalent childless couples, was not used because of limitations with this approach. The marginal cost method depends on development of an equivalency measure for which there is no established base. Various measures have been proposed, with each yielding different estimates of expenditures on children. Also, some of the marginal cost approaches do not consider substitution effects. They assume, for example, that parents do not alter their expenditures on themselves after a child is added to a household.

As transportation expenses resulting from work activities are not related to expenses on children, these costs were excluded when estimating children's transportation expenses. The overall USDA methodology was repeated for families with one child and more than two children so adjustments may be made for families of different sizes.

Although based on the 1990-92 CE, the expense estimates were updated to 1997 dollars using the Consumer Price Index (CPI) (1990 and 1991 expenditure and income data were first converted to 1992 dollars; then all 3 years of data were updated to 1997 dollars).

**Table ES-1. Estimated annual expenditures* on a child by husband-wife families, overall United States, 1997**

| Age of child | Total | Housing | Food | Transportation | Clothing | Health care | Child care and education | Miscellaneous† |
|---|---|---|---|---|---|---|---|---|
| **Before-tax income: Less than $35,500 (Average=$22,100)** | | | | | | | | |
| 0-2 | $5,820 | $2,220 | $830 | $730 | $370 | $400 | $690 | $580 |
| 3-5 | 5,920 | 2,190 | 920 | 700 | 360 | 380 | 780 | 590 |
| 6-8 | 6,070 | 2,120 | 1,190 | 820 | 410 | 440 | 460 | 630 |
| 9-11 | 6,090 | 1,910 | 1,420 | 890 | 450 | 480 | 280 | 660 |
| 12-14 | 6,880 | 2,130 | 1,490 | 1,000 | 760 | 480 | 200 | 820 |
| 15-17 | 6,790 | 1,720 | 1,610 | 1,350 | 670 | 510 | 330 | 600 |
| Total | $112,710 | $36,870 | $22,380 | $16,470 | $9,060 | $8,070 | $8,220 | $11,640 |
| **Before-tax income: $35,500 to $59,700 (Average=$47,200)** | | | | | | | | |
| 0-2 | $8,060 | $3,000 | $990 | $1,090 | $440 | $520 | $1,130 | $890 |
| 3-5 | 8,270 | 2,970 | 1,140 | 1,060 | 430 | 500 | 1,260 | 910 |
| 6-8 | 8,350 | 2,900 | 1,460 | 1,180 | 480 | 570 | 810 | 950 |
| 9-11 | 8,320 | 2,700 | 1,710 | 1,250 | 530 | 620 | 530 | 980 |
| 12-14 | 9,050 | 2,920 | 1,730 | 1,360 | 890 | 620 | 390 | 1,140 |
| 15-17 | 9,170 | 2,500 | 1,920 | 1,720 | 790 | 660 | 660 | 920 |
| Total | $153,660 | $50,970 | $26,850 | $22,980 | $10,680 | $10,470 | $14,340 | $17,370 |
| **Before-tax income: More than $59,700 (Average=$89,300)** | | | | | | | | |
| 0-2 | $11,990 | $4,770 | $1,310 | $1,520 | $580 | $600 | $1,710 | $1,500 |
| 3-5 | 12,230 | 4,740 | 1,480 | 1,490 | 570 | 580 | 1,860 | 1,510 |
| 6-8 | 12,180 | 4,670 | 1,790 | 1,610 | 620 | 660 | 1,280 | 1,550 |
| 9-11 | 12,090 | 4,470 | 2,080 | 1,680 | 680 | 710 | 890 | 1,580 |
| 12-14 | 12,930 | 4,690 | 2,180 | 1,790 | 1,120 | 710 | 690 | 1,750 |
| 15-17 | 13,260 | 4,270 | 2,300 | 2,180 | 1,020 | 750 | 1,210 | 1,530 |
| Total | $224,040 | $82,830 | $33,420 | $30,810 | $13,770 | $12,030 | $22,920 | $28,260 |

*Estimates are based on 1990-92 Consumer Expenditure Survey data updated to 1997 dollars using the Consumer Price Index. The figures represent estimated expenses on the younger child in a two-child family. Estimates are about the same for the older child, so to calculate expenses for two children, figures should be summed for the appropriate age categories. To estimate expenses for an only child, multiply the total expense for the appropriate age category by 1.24. To estimate expenses for each child in a family with three or more children, multiply the total expense for each appropriate age category by 0.77. For expenses on all children in a family, these totals should be summed.

†Miscellaneous expenses include personal care items, entertainment, and reading materials.

## Results

***Expenses on younger child in two-child, husband-wife households:***

- Estimated expenses vary considerably by household income level. Depending on age of the child, the expenses range from $5,820 to $6,880 for families in the lowest income group (1997 before-tax income less than $35,500), from $8,060 to $9,170 for families in the middle income group (1997 before-tax income between $35,500 and $59,700), and from $11,990 to $13,260 for families in the highest income group (1997 before-tax income more than $59,700).

- As a proportion of total child-rearing expenses, housing accounts for the largest share across income groups, comprising 33 to 37 percent of expenses. Food is the second largest average expense on a child for families regardless of income level, accounting for 15 to 20 percent of child-rearing expenses.

- Expenditures on children are lower in the younger age categories and higher in the older age categories. This held across income groups.

- Overall child-rearing expenses are highest for families in the urban West, followed by the urban Northeast and urban South; families in the urban Midwest and rural areas have the lowest child-rearing expenses.

***Expenses on older child and on children in husband-wife households of different sizes:***

- Tables 1-6 (see pp. 15-20) reflect total expenditures on an older child in a two-child family, as well as on a younger child (as shown by additional analyses). Annual expenditures on children may be estimated by summing the total expenses for the specific age categories of the two children.

- Compared with expenditures for each child in a two-child family, households with one child spend an average of 24 percent more on the single child, and those with three or more children spend an average of 23 percent less on each child.

***Expenses on children in single-parent households:***

- For the younger child in a two-child household, the child-rearing expense patterns of single-parent households are similar to those of husband-wife households. The primary difference is that the majority of single-parent households are in the lower income group.

- In single-parent households with two children, about 7 percent less is spent on the older child than on the younger child at a specific age category. In addition, more is spent if a single-parent household has only one child and less is spent per child if a single-parent household has three or more children.

## Other Expenditures on Children

Expenditures estimated in this study are composed of direct parental expenses made on children through age 17 for seven major budgetary components. These expenditures exclude college costs and other parental expenses on children after age 17. In addition, expenditures on children made by people outside the household and by the government are not included. Indirect costs involved in child rearing by parents (time costs, foregone earnings and career opportunities) are also not included in the estimates.

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# Expenditures on Children by Families

The U.S. Department of Agriculture (USDA) provides estimates of expenditures on children from birth through age 17 by husband-wife and single-parent families. The figures for 1997 are shown in tables 1–7, which have been placed for convenience at the end of this report. Recent USDA estimates are not directly comparable to estimates published in 1988 or earlier because of changes in methods (U.S. Department of Agriculture 1981). The estimates are comparable to those made in 1989 and later as the methodology for the estimates is essentially the same for these years. For husband-wife families, estimates are for three income groups and for single-parent families, two income groups. To partially adjust for price differentials and varying patterns of expenditures, estimates are also provided for husband-wife families in urban areas in four regions (West, Northeast, South, and Midwest) and for rural areas throughout the United States, as well as for the United States overall. Urban areas are defined as Metropolitan Statistical Areas (MSA's) and other places of 2,500 or more people outside an MSA; rural areas are places of fewer than 2,500 people outside an MSA.

For single-parent families, estimates are provided only for the United States overall because of sample size limitations. Expenditures on children are estimated for the major budgetary components: Housing, food, transportation, clothing, health care, child care and education, and miscellaneous goods and services. The box on p. 2 describes each expenditure component.

## Source of Data

Data used to estimate expenditures on children are from the 1990-92 Consumer Expenditure Survey-Interview portion (CE). This survey is the most comprehensive source of information on household expenditures available at the national level. Administered by the Bureau of Labor Statistics (BLS), U.S. Department of Labor, the CE has been conducted annually since 1980 and collects information on characteristics and income as well as expenditures of consumer units. For this study, the terms *households* and *families* are used for consumer units. About 5,000 households are interviewed each quarter over a 1-year period. Each quarter is deemed an independent sample by BLS, bringing the total number of households in each year's survey to about 20,000 households.

From these households, husband-wife and single-parent families were selected for this study if: (1) they had at least one child of their own, age 17 or under, in the household, (2) they had six or fewer children, (3) there were no other related or unrelated people present in the household except their own children, and (4) they were complete income reporters. As defined by BLS, complete income reporters are households that provide values for major sources of income, such as wages and salaries, self-employment income, and Social Security income. Quarterly expenditures were annualized. The sample consisted of 12,850 husband-wife households and 3,395 single-parent households and was weighted to reflect the U.S. population of interest, using BLS weighting methods.

Although based on 1990-92 data, the expense estimates were updated to 1997 dollars using the Consumer Price Index (CPI) (1990 and 1991 expenditure and income data were first converted to 1992 dollars; then all 3 years of data were updated to 1997 dollars). Income levels of households were updated to 1997 dollars using the all-items category of the CPI, and expenditures were updated using the CPI for the corresponding item (that is, the CPI's for housing, food, etc.). Regional estimates were updated to 1997 dollars using the regional CPI's. Because there is no rural CPI, the CPI for size class D—nonmetropolitan areas with populations less than 50,000—was applied to rural areas.

## Expenditures by Husband-Wife Families

### Estimating Expenditures

The CE collects overall household expenditure data for some budgetary components (housing, food, transportation, health care, and miscellaneous goods and services) and child-specific (or adult-specific) expenditure data for other components (clothing, child care, and education). Multivariate analysis was used to estimate household and child-specific expenditures, controlling for income level, family size, and age of the younger child so estimates could be made for families with these varying characteristics. Regional estimates were derived by controlling for region. The three income groups of husband-wife households (before-tax income

## Categories of Household Expenditures

*Housing expenses* include shelter (mortgage interest, property taxes, or rent; maintenance and repairs; and insurance), utilities (gas, electricity, fuel, telephone, and water), and house furnishings and equipment (furniture, floor coverings, major appliances, and small appliances). It should be noted that for homeowners, housing expenses do not include mortgage principal payments; such payments are considered in the CE to be a part of savings. So total dollars allocated to housing by homeowners are underestimated in this report.

Food expenses include food and nonalcoholic beverages purchased at grocery, convenience, and specialty stores, including purchases with food stamps; dining at restaurants; and household expenditures on school meals.

Transportation expenses include the net outlay on purchase of new and used vehicles, vehicle finance charges, gasoline and motor oil, maintenance and repairs, insurance, and public transportation.

Clothing expenses include children's apparel such as diapers, shirts, pants, dresses, and suits; footwear; and clothing services such as dry cleaning, alterations and repair, and storage.

Health care expenses include medical and dental services not covered by insurance, prescription drugs and medical supplies not covered by insurance, and health insurance premiums not paid by employer or other organization.

Child care and education expenses include day care tuition and supplies; baby-sitting; and elementary and high school tuition, books, and supplies.

Miscellaneous expenses include personal care items, entertainment, and reading materials.

under $31,000, between $31,000 and $52,160, and over $52,160 in 1992 dollars) were determined by dividing the sample for the overall United States into equal thirds. Income intervals were used to be consistent with previous USDA studies and to allow ready reference to information for commonly used ranges of income.

For each income level, estimates were made for husband-wife families with two children, where the younger child was in one of six age categories (0–2, 3–5, 6–8, 9–11, 12–14, and 15–17 years). Households with four members (two children) were selected as the standard since four was the average size of two-parent families in 1990-92 based on CE data. The focus was on the younger child in a household because the older child was sometimes over age 17. If the older child had been selected as the household member of interest, expenditures for some items would be higher or lower. In addition, if households with one or three or more children had been selected, per-child expenditures would reflect the differences in family size. As the number of children in a family increases, the allocation of resources among children changes. To adjust expenditures for the older child and number of children, see discussion on pp. 5-7. As an estimated average expense was wanted for families with two children in a given income group, with the younger child in a given age group, and (when appropriate) who resided in a given region, each expense was estimated separately. The specific equations used in estimating child-rearing expenses are listed in the box on p. 3.

It should be noted that the estimates are based on CE interviews of households with and without specific expenses, so for some families their expenditures may be higher or lower than the mean estimates, depending on whether they incur the expense or not. This particularly applies to child care and education for which about 50 percent of families in the study had no expenditure. For more detailed information on child care expenses for households with the expense, see Casper 1995. Also, the estimates only cover out-of-pocket expenditures on children made by the parents and not by others such as grandparents or friends. For example, the

## Equations Used in Multivariate Analyses

For the overall U.S. estimates of husband-wife expenditures on children, the specific equation was

$$Ei = a + b1Y2 + b2Y3 + c1HS1 + c2HS3 + d1CA2 + d2CA3 + d3CA4 + d4CA5 + d5CA6$$

where

Ei = household expenditures on a particular budgetary component (housing, food, transportation, health care, children's clothing, child care and education, and miscellaneous goods and services)

Y2 = 1 if household had before-tax income between $31,000 and $52,160 in 1992 dollars, 0 otherwise

Y3 = 1 if household had before-tax income over $52,160 in 1992 dollars, 0 otherwise (the omitted category being "household had before-tax income under $31,000 in 1992 dollars")

HS1 = 1 if husband-wife household with one child, 0 otherwise

HS3 = 1 if husband-wife household with three or more children, 0 otherwise (the omitted category being "husband-wife household with two children")

CA2 = 1 if age of the younger child was 3–5, 0 otherwise

CA3 = 1 if age of the younger child was 6–8, 0 otherwise

CA4 = 1 if age of the younger child was 9–11, 0 otherwise

CA5 = 1 if age of the younger child was 12–14, 0 otherwise

CA6 = 1 if age of the younger child was 15–17, 0 otherwise (the omitted category being "age of the younger child was 0–2").

For the regional estimates of husband-wife expenditures on children, the specific equation was

$$Ei = a + b1Y2 + b2Y3 + c1HS1 + c2HS3 + d1CA2 + d2CA3 + d3CA4 + d4CA5 + d5CA6 + e1NE + e2S + e3MW + e4W$$

where

Ei through *CA6* are the same as before *and*

NE = 1 if household resided in the urban Northeast, 0 otherwise

S = 1 if household resided in the urban South, 0 otherwise

MW = 1 if household resided in the urban Midwest, 0 otherwise

W = 1 if household resided in the urban West, 0 otherwise (the omitted category being "household resided in a rural area anywhere within the United States").

Ordinary least squares analysis was used to estimate expenditures for housing, food, transportation, and miscellaneous goods and services. Tobit analysis was used to estimate expenditures for health care, children's clothing, and child care and education since over 10 percent of the sample reported zero expenses for these budgetary components. Because of these zero expenditures, tobit analysis yields more efficient estimates than ordinary least squares analysis. The procedure outlined by McDonald and Moffitt (1980) was used to transform the tobit analysis estimates into dollars.

Family expenditures on each budgetary component (Ei) were calculated by summing the coefficients for the appropriate income level, household size, age of the younger child, and region when appropriate. For example, expenditures for a husband-wife household in the urban Northeast, with before-tax income between $31,000 and $52,160 in 1992 dollars, two children, and the younger child age 6–8 were calculated as $Ei = a + b1Y2 + d2CA3 + e1NE$.

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value of clothing gifts to children from grandparents would not be included in clothing expenses. On the other hand, some of the expenditures reported by parents may be gifts for children other than their own.

Regional income categories are based on the national income categories in 1992 dollars, updated to 1997 dollars using regional/population size CPI's. The regional income categories were not divided into equal thirds for each region. As previously mentioned, the three income categories were calculated for the overall United States by dividing the sample into equal thirds. In the West, Northeast, and Midwest, a lower percentage of households were in the lower income group because income levels were higher in these regions compared with the overall United States; in the South and rural areas, a higher percentage of households were in the lower income group. In the West and Northeast, a higher percentage of households were in the higher income group because income levels were higher in these regions compared with the overall United States.

## Allocating Expenditures

After the overall household and child-specific expenditures were estimated, these total amounts were allocated among the four family members (husband, wife, older child, and younger child). The estimated expenditures for clothing and child care and education were only for children. It was assumed these expenses were equally allocated to each child so allocations of these expenses were made by dividing the estimated expenditures by two (the number of children in the household).

CE data on children's clothing expenditures were for children age 15 and under. For the estimates, therefore, it was assumed that the clothing expenditures of a 16- or 17-year-old were similar to those of a 15-year-old, and these older teenagers were assigned the expenditures of a 15-year-old. Also, expenditures for clothing services (dry cleaning, alterations, etc.) were estimated for the overall household and allocated on a per capita basis among its members.

Because the CE did not collect expenditures on food and health care by family member, data from other Federal studies were used to apportion these budgetary components to children by age and household size. Food budget shares as a percentage of total food expenditures for the younger child in a husband-wife household with two children were determined using the 1994 USDA food plans (U.S. Department of Agriculture 1994). The food plans are based on household use and individual intake, and food expenditure data. They reflect the cost of a nutritious diet taking into account food costs, food composition, nutritional needs, and consumption behavior. The food budget shares from the food plans were estimated by age of the child and household income level. The food budget shares were then applied to the estimated household food expenditures to determine food expenses on children. The calculated food budget shares are shown in table 8. As an example of how food expenditures were calculated on a 3-5 year old, who is the younger child in a married-couple, two-child household in the middle income group, overall household food expenditures were estimated from the multivariate analysis to be $5,565 in 1992 dollars for this family type. Based on the food plans, the food budget share for this 3-5 year old was figured to be 18 percent. Thus, food expenditures on the 3-5 year old were estimated to be $1,002 ($5,565 x .18) in 1992 dollars.

**Table 8. Children's food budget shares by age and income group in husband-wife families***

| Age of child | Income group | | |
|---|---|---|---|
| | Lowest | Middle | Highest |
| | *Percent share* | | |
| 0–2 | 18 | 17 | 17 |
| 3–5 | 18 | 18 | 18 |
| 6–8 | 22 | 22 | 21 |
| 9–11 | 24 | 24 | 23 |
| 12–14 | 25 | 24 | 24 |
| 15–17 | 25 | 25 | 24 |

*Estimated shares are for the younger child in two-child families.

The 1987 National Medical Expenditure Survey (NMES) conducted by the Public Health Service, U.S. Department of Health and Human Services (HHS) contains data on out-of-pocket health care expenses by age of individual household members (Lefkowitz and Monheit 1991). NMES data were used to determine the proportion of health care expenses attributable to the younger child in a husband-wife household with two children. These individual member shares for health care expenses were then applied to estimated household health care expenditures to determine expenses

on children. Applying these derived health care expense shares to total household health care expenditures for the three income groups in 1990-92 assumes these shares have not changed since 1987 and do not vary by income. Published data on individual member shares for health care expenses by household income level were not available. Health care budget shares by age of the younger child in a husband-wife household with two children were 20 percent for a child age 0–5 and 22 percent for a child age 6–17.

Unlike food and health care, no research base exists for allocating expenditures on housing, transportation, and miscellaneous goods and services among individual household members. Two of the most common approaches for allocating these expenses are the marginal cost method and the per capita method. The marginal cost method measures expenditures on children as the difference in expenses between couples with children and equivalent childless couples. The method depends on development of an equivalency measure for which there is no established base. Various measures have been proposed, with each yielding different estimates of expenditures on children. These measures are described in more detail in the section "Alternative Estimates of Expenditures on Children" and the appendix. Some of the marginal cost approaches do not consider substitution effects. They assume, for example, that parents do not alter their expenditures on themselves after a child is added to a household. In addition, it is possible that some couples without children buy larger houses in anticipation of children; other couples without children purchase less expensive housing in anticipation of future child-rearing expenses. Comparing the expenditures of these couples to similar couples with children could lead to underestimates or overestimates of expenditures on children.

For these reasons, the per capita method was used for this study. This method simply allocates expenses among household members in equal proportions. Although the per capita method has its limitations, these were deemed less than those of the marginal cost approach. A major limitation of the per capita method is that expenditures for an additional child may be less than average expenditures. Because of this possibility, adjustment formulas for one child or three or more children were devised for use when estimating expenditures on children for households of different sizes. These formulas are discussed in the next section.

Transportation expenses attributed to employment (employment being the primary purpose of the trip) are not related to expenses on children, so these costs were excluded from estimated expenses. Data from a 1990 study by the U.S. Department of Transportation (1994) were used to calculate the percentage of transportation expenditures attributable to employment-related activities for husband-wife households with the youngest child of different ages. Employment-related transportation activities accounted for 40 percent of travel for households with the youngest child under age 6, and 38 percent for households with the youngest child age 6–17. Deducting these percentages from total transportation expenditures for the three income groups assumes these patterns do not vary by income level. Published data on transportation activities for various family types by income level were not available.

### Adjustments for Older Children and Household Size

The estimates of expenses on children represent expenditures on the younger child in a husband-wife household with two children. Expenses for the older child may be different. To determine the extent of this difference and how the expenditures may be adjusted to estimate expenses on an older child, the previous method was essentially repeated with the focus on the older child. Multivariate analysis was used to estimate expenditures for each budgetary component, controlling for household size (a family with two children was used as the standard) and age of the older child (the same age categories as used with the younger child). Household income and region of residence were not held constant, so findings apply to all families. The sample was smaller than that used for the principal analysis, since only households with an older child age 17 or under were selected. The sample was weighted to reflect the U.S. population of interest.

Children's clothing and child care and education expenditures were divided between the two children in the two-parent household. For food and health care, household member shares were calculated for a four-person household (husband, wife, and two children with the older child in one of the six age categories) using the USDA and HHS studies. The shares for the

**Table 9. Estimated annual expenditures* on one, two, or three children by husband-wife families, overall United States, 1997**

| One-child household<br>Age of child | Annual expenditure |
|---|---|
| 0–2 | $9,990 = ($8,060 x 1.24) |
| 3–5 | 10,250 = ( 8,270 x 1.24) |
| 6–8 | 10,350 = ( 8,350 x 1.24) |
| 9–11 | 10,320 = ( 8,320 x 1.24) |
| 12–14 | 11,220 = ( 9,050 x 1.24) |
| 15–17 | 11,370 = ( 9,170 x 1.24) |

| Two-child household<br>Age of younger child | Age of older child | |
|---|---|---|
| 0–2 | 16 | $17,230 = ($8,060 + $9,170) |
| 3–5 | 16 | 17,440 = ( 8,270 + 9,170) |
| 6–8 | 16 | 17,520 = ( 8,350 + 9,170) |
| 9–11 | 16 | 17,490 = ( 8,320 + 9,170) |
| 12–14 | 16 | 18,220 = ( 9,050 + 9,170) |
| 15 | 16 | 18,340 = ( 9,170 + 9,170) |

| Three-child household<br>Age of youngest child | Age of older children | |
|---|---|---|
| 0–2 | 13, 16 | $20,240 = [($8,060 + $9,050 + $9,170) x 0.77] |
| 3–5 | 13. 16 | 20,400 = [( 8,270 + 9,050 + 9,170) x 0.77] |
| 6–8 | 13, 16 | 20,460 = [( 8,350 + 9,050 + 9,170) x 0.77] |
| 9–11 | 13, 16 | 20,440 = [( 8,320 + 9,050 + 9,170) x 0.77] |
| 12 | 13, 16 | 21,000 = [( 9,050 + 9,050 + 9,170) x 0.77] |

*Estimates are for families with 1997 before-tax incomes between $35,500 and $59,700.

older child were then applied to estimated household food and health care expenditures to determine expenses on the older child in each age category. Housing, transportation, and miscellaneous expenditures were allocated among household members on a per capita basis. Transportation expenses were adjusted to reflect nonemployment-related activities.

It was found that tables 1–6 reflect total expenditures on an older child in a husband-wife, two-child family, as well as on a younger child. Therefore, annual expenditures on children in a husband-wife, two-child family may be estimated by summing the total expenses for the specific age categories of the two children. For example, annual expenditures on a younger child age 9–11 and an older child age 15–17 in a husband-wife, two-child family in the middle income group for the overall United States would be $17,490 ($8,320 + $9,170) (table 9). It should be noted that for specific budgetary components, annual expenses on an older child varied compared with those on a younger child.

Families spent more on clothing and education for an older child but less on transportation and miscellaneous expenses.

The estimates should be adjusted if a household has only one child or more than two children. Families will spend more or less on a child depending on the number of other children in the household and economies of scale. To derive these adjustments, multivariate analysis was used to estimate expenditures for each budgetary component, controlling for household size and age of the younger child but not household income level and region of the country, so the results are applicable to all families. These expenditures were then assigned to children using the previous method. Compared with expenditures for each child in a husband-wife, two-child family, husband-wife households with one child spend an average of 24 percent more on the single child, and those with three or more children spend an average of 23 percent less on each child.

Therefore, to estimate annual overall expenditures on an only child using tables 1–6, 24 percent should be added to the total expense for each age category. To estimate expenses on three or more children, 23 percent should be subtracted from the total expense for each child's age category and these totals should be summed. For a particular budgetary component, the percentages may be more or less. As family size increases, costs per child for food decrease less than for housing and transportation. Much housing space is used in common, and car trips can serve more than one child.

As an example of adjustments needed for different numbers of children, total expenses on children in families with one, two, and three children are presented in table 9 for a household in the middle income group. In the example, the age of the older child is 16 in the two-child household and the ages of the older children are 13 and 16 in the three-child household. As can be seen, less is spent per child as family size increases. The estimated annual expense on a child age 0–2 with no siblings is $9,990; for two children ages 0–2 and 16, it is $17,230; and for three children ages 0–2, 13, and 16, $20,240.

## Expenditures by Single-Parent Families

The estimates of expenditures on children by husband-wife families do not apply to single-parent families, which account for an increasing percentage of families with children. Separate estimates of child-rearing expenses in single-parent households were made using 1990-92 CE data. Most single-parent families in the survey (90 percent) were headed by a woman.

The method used in determining child-rearing expenses for two-parent households was followed. Multivariate analysis was used to estimate expenditures for each budgetary component, controlling for income level, household size (a single parent with two children was used as the standard), and age of the younger child (the same age categories as used with children in two-parent families). Because of sample size limitations, expenses were not estimated by region.

Income groups of single-parent households (before-tax income under $31,000 and $31,000 and over in 1992 dollars; these income groups are inflated to 1997 dollars in the table) were selected to correspond with the income groups used for husband-wife households. This income includes child support payments. The two higher income groups of two-parent families (income between $31,000 and $52,160 and over $52,160 in 1992 dollars) were combined because only 17 percent of single-parent households had a before-tax income of $31,000 and over. The sample was weighted to reflect the U.S. population of interest.

Expenses for children's clothing and for child care and education were divided between the two children in the one-parent household. For food and health care, household member expenditure shares were calculated for a three-member household (single parent and two children, with the younger child in one of the six age categories) using the USDA and HHS studies. These shares for the younger child in a single-parent family were then applied to estimated household food and health care expenditures to determine expenses for the younger child in each age category. Housing, transportation, and miscellaneous expenditures were allocated among household members on a per capita basis. Transportation expenses were adjusted to account for nonemployment-related activities in single-parent families. Income and expenses were updated to 1997 dollars.

**Table 10. Comparison of estimated expenditures* on children by single-parent and husband-wife families, overall United States, 1997**

| Age of child | Single-parent households | Husband-wife households |
|---|---|---|
| 0--2 | $4,900 | $5,820 |
| 3--5 | 5,510 | 5,920 |
| 6--8 | 6,230 | 6,070 |
| 9--11 | 5,820 | 6,090 |
| 12--14 | 6,270 | 6,880 |
| 15--17 | 6,970 | 6,790 |
| Total | $107,100 | $112,710 |

*Estimates are for the younger child in two-child families with 1997 before-tax income less than $35,500.

Estimates of child-rearing expenses for single-parent families are in table 7. For the lower income group (1997 before-tax income less than $35,500), a comparison of estimated expenditures on the younger child in a two-child, single-parent family with those in a husband-wife family is presented in table 10, as previously discussed, 83 percent of single-parent families and 33 percent of husband-wife families were in this lower income group. Total expenditures on a child up to age 18 were, on average, 5 percent lower in single-parent households than in two-parent households. But more single-parent than husband-wife families fell in the bottom range of this lower income group. Average income for single-parent families in the lower income group was $14,800, compared with $22,100 for husband-wife families. Single-parent families in this lower income group, therefore, spend a larger proportion of their income on their children. On average, child-related housing expenses were higher, whereas expenditures on transportation, health care, child care and education, and miscellaneous goods and services were lower in single-parent families. Child-related food and clothing expenditures were similar, on average, in single-parent and in two-parent families.

For the higher income group of single-parent families (1997 before-tax income of $35,500 and over), estimates of child-rearing expenses were about the same as those for two-parent households in the before-tax income group of more than $59,700: total expenses for the younger child up to age 18 were $225,360 for single-parent families versus $224,040 for husband-wife families in 1997 dollars. However, the average income of single-parent households was much lower. Therefore, child-rearing expenses in the higher income group of single-parent families consume a larger proportion of income than they do in husband-wife families. Expenditures on children do not appear to differ very much among single-parent and husband-wife households. What differs is household income levels. As single-parent families have one less potential earner (the absent partner), their total household income is lower and child-rearing expenses consume a greater percentage of income.

The estimates only cover out-of-pocket child-rearing expenditures made by the parent who has the primary care of the child. The estimates do not include child-related expenditures made by the parent without primary care or by others, such as grandparents. For example, the parent with whom the child does not reside the majority of the time may incur transportation, food, and entertainment expenses during visitation days and maintain a larger living unit because the child stays with him or her on weekends. The noncustodial parent could also contribute to the child's clothing and health care expenses. Such expenditures could not be estimated from the data. Overall expenses paid by both parents on a child in a single-parent household, therefore, are likely to be greater than this study's estimates.

## Adjustments for Older Children and Household Size

To determine the difference in expenditures on an older child in single-parent households, multivariate analysis was used to estimate expenditures for each budgetary component, controlling for household size (a family with two children was used as the standard) and age of the older child. These expenditures were then assigned to children for child-specific expenditures or, for overall household expenditures, allocated to children based on previous research (Lefkowitz and Monheit 1991; U.S. Department of Agriculture 1994) or on a per capita basis.

On average, single-parent households with two children spend about 7 percent less on the older child than on the younger child at a specific age category. This is contrary to husband-wife households that spend about the same amount on either child at a specific

age category. In addition, more or less is spent if a single-parent household has only one child or three or more children. To determine these differences, multivariate analysis was used to estimate expenditures for each budgetary component, controlling for household size and age of the younger child. These expenditures were then assigned to children using the previously described method. Compared with expenditures on the younger child in a two-child single-parent family, single-parent families with one child spend an average of 35 percent more on the single child, and those with three or more children spend an average of 28 percent less on each child.

## Alternative Estimates of Expenditures on Children

This study estimated child-related expenditures and overall household expenditures. Child-specific expenses were assigned to children; overall expenses were allocated to children based on previous research or on a per capita basis. There are other approaches tc estimating expenditures on children. Two common methods are the marginal cost method and a strict per capita method.

A study sponsored by the U.S. Department of Health and Human Services (1990) estimated husband-wife child-rearing expenses, based on the 1980-87 CE, using these alternative methods and compared them with USDA's estimates. The comparison was based on child-rearing expense estimates as a percentage of total family expenditures, so the estimates did not have to be converted into real dollars. The marginal cost method, which measures expenditures on children as the difference in expenses between couples with children and equivalent childless couples, was implemented using two equivalency measures—the Engel and Rothbarth estimators.

The Engel estimator assumes that if two families spend an equal percentage of their total expenditures on food, they are equally well-off. The Rothbarth estimator uses spending an equal amount on observable adult goods as the equivalency measure. The strict per capita approach allocates household expenditures equally among family members.

The results of these different methods for estimating child-rearing expenses (including the most recent USDA estimates) are presented in table 11, by number of children and total household expenditures. The results for the Engel and Rothbarth estimators are taken directly from the HHS study. The USDA estimates are based on the 1995 study. USDA's child-rearing estimates were consistently below those derived using a strict per capita approach. This was expected, as not all goods and services are shared equally among family members. The Engel and Rothbarth techniques yield varying estimates, which differ as much as 20 percentage points for a family with three children. So when using the marginal cost method in estimating expenditures on children, the choice of an equivalency measure is obviously critical since different measures yield different results.

USDA's estimates of child-rearing expenses were between those produced by the Engel and Rothbarth techniques. All estimates indicate that expenditures on children do not increase proportionately as the number of children increases. Expenditures on two children are less than twice as much as those on one child.

Although the USDA utilizes the per capita approach rather than a marginal cost approach in allocating housing, transportation, and miscellaneous expenditures to children in a household, a USDA study (Lino and Johnson 1995) examined how these expenses would be allocated using three different marginal cost approaches—the Engel, Rothbarth, and Barten-Gorman estimators. The USDA study differed from the HHS study in that it only applied the results from the marginal cost methods to these three selected expenses. The focus was on the younger child in a two-child family. The Rothbarth method produced unrealistically low estimates of expenditures on children. The Engel and Barten-Gorman methods produced estimates of expenditures on a child for housing and miscellaneous goods and services that were below those produced by the USDA per capita method. For transportation expenses on a child, the Engel and Barten-Gorman methods produced estimates that were higher than the USDA per capita method. For a detailed description of this study, see the appendix, p. 13.

**Table 11. Average percent of household expenditures attributable to children in husband-wife families**

| Child expenditures | Estimator | | | |
|---|---|---|---|---|
| | Engel[1] | Rothbarth[1] | Per capita | USDA[2] |
| | *Percent* | | | |
| Number of children | | | | |
| One | 33 | 25 | 33 | 26 |
| Two | 49 | 35 | 50 | 42 |
| Three | 59 | 39 | 60 | 48 |
| Household expenditure level[3] | | | | |
| Low | 49 | 36 | 50 | 45 |
| Average | 49 | 36 | 50 | 42 |
| High | 49 | 35 | 50 | 39 |

1Percentages for these estimators taken from: U.S. Department of Health and Human Services, 1990.
[2]Percentages taken from the 1995 USDA study. Average expenditures of families in each income level were used to make comparisons. Percentages by number of children are based on average expenditures of middle-income families.
[3]Percentages by household expenditure level are for a family with two children.

## Estimating Future Costs

The estimates presented so far represent household expenditures on a child of a certain age in 1997. To estimate these expenses over time future price changes need to be incorporated. To do this, a future cost formula is used:

$$C_f = C_p (1 + i)^n$$

where

$C_f$ = projected future annual dollar expenditure on a child of a particular age
$C_p$ = present (1997) annual dollar expenditure on a child of a particular age
i = projected annual inflation (or deflation)
n = number of years from present until child will reach a particular age.

An example of estimated future expenditures on the younger child in a husband-wife family with two children is presented in table 12. The example assumes a child is born in 1997, reaching age 17 in the year 2014, and the average annual inflation rate over this time is 5.0 percent (the average annual inflation rate over the past 20 years) (U.S. Department of Commerce 1997). As can be seen, total family expenses on a child through age 17 would be $178,840 for households in the lowest income group, $242,890 for those in the middle, and $353,130 for those in the highest. In 1997 dollar values, these figures would be $112,710, $153,660, and $224,040, respectively.

Inflation rates other than 5.0 percent could be used in the formula if inflation projections change. Also, it is somewhat unrealistic to assume that households remain in one income category as a child grows older. For most families, income rises over time so a family may move from one income group to another. In addition, such inflation projections assume child-rearing expenditures change only with inflation. Parental expenditure patterns also change over time.

## Other Expenditures

Expenditures estimated in this study were composed of direct parental expenses made on children through age 17 for seven major budgetary components. These expenditures excluded costs related to childbirth and prenatal health care. In 1995, health care costs averaged $6,378 for a normal delivery and $10,638 for a Caesarean delivery (Health Insurance Association of America 1996). These costs may be reduced by health insurance.

**Table 12. Estimated annual expenditures* on children born in 1997, by income group, overall United States**

| Year | Age | Income group | | |
|---|---|---|---|---|
| | | Lowest | Middle | Highest |
| 1997 | <1 | $5,820 | $8,060 | $11,990 |
| 1998 | 1 | 6,110 | 8,460 | 12,590 |
| 1999 | 2 | 6,420 | 8,890 | 13,220 |
| 2000 | 3 | 6,850 | 9,570 | 14,160 |
| 2001 | 4 | 7,200 | 10,050 | 14,870 |
| 2002 | 5 | 7,560 | 10,550 | 15,610 |
| 2003 | 6 | 8,130 | 11,190 | 16,320 |
| 2004 | 7 | 8,540 | 11,750 | 17,140 |
| 2005 | 8 | 8,970 | 12,340 | 18,000 |
| 2006 | 9 | 9,450 | 12,910 | 18,760 |
| 2007 | 10 | 9,920 | 13,550 | 19,690 |
| 2008 | 11 | 10,420 | 14,230 | 20,680 |
| 2009 | 12 | 12,360 | 16,250 | 23,220 |
| 2010 | 13 | 12,970 | 17,070 | 24,380 |
| 2011 | 14 | 13,620 | 17,920 | 25,600 |
| 2012 | 15 | 14,120 | 19,060 | 27,570 |
| 2013 | 16 | 14,820 | 20,020 | 28,940 |
| 2014 | 17 | 15,560 | 21,020 | 30,390 |
| **Total** | | **$178,840** | **$242,890** | **$353,130** |

*Estimates are for the younger child in husband-wife families with two children.

One of the largest expenses made on children after age 17 is the cost of a college education. The College Board (1997) estimated that in 1997-98, annual average tuition and fees were $3,027 at 4-year public colleges and $11,721 at 4-year private colleges; annual room and board was $4,152 at 4-year public colleges and $4,883 at 4-year private colleges. For 2-year colleges in 1997-98, annual average tuition and fees were $1,538 at public colleges and $7,100 at private colleges; annual room and board was $4,240 at 2-year private colleges (no estimates were given for 2-year public colleges). Other parental expenses on children after age 17 could include those associated with children living at home or if children do not live at home, gifts and other contributions to them. A 1996 survey found that 47 percent of parents in their fifties support children over 21 years of age (Phoenix Home Life Mutual Insurance Company 1996).

The estimates do not include all government expenditures on children. Examples of excluded expenses would be public education, Medicaid, and subsidized school meals. The actual expenditures on children (by parents and the government), therefore, would be higher than reported in this study, especially for children in the lowest income group. Indirect costs involved in child rearing were also not included in the estimates. Although these costs are typically more difficult to measure than direct expenditures, they may be substantial. The time involved in rearing children is considerable. In addition, to care for children, current earnings and future career opportunities may be diminished because of reduced time in the labor force for one or both parents. For more on these indirect costs, see Ireland and Ward 1995, Bryant et al. 1992, and Spalter-Roth and Hartmann 1990.

## References


Bryant, W.K., Zick, C.D., and Kim, H. 1992. *The Dollar Value of Household Work.* College of Human Ecology, Cornell University, Ithaca, NY.

Casper, L.M. 1995. *What Does It Cost to Mind Our Preschoolers?* Current Population Reports, Household Economic Studies, P70-52. U.S. Department of Commerce, Bureau of the Census.

The College Board. 1997. *News from the College Board.* September 24 issue.

Health Insurance Association of America. 1996. *Source Book of Health Insurance Data*, 1996 ed. Washington, DC.

Ireland, T.R. and Ward, J.O. 1995. *Valuing Children in Litigation: Family and Individual Loss Assessment.* Lawyers and Judges Publishing Company, Inc., Tucson, AZ.

Lazear, E.P. and Michael, R.T. 1988. *Allocation of Income Within the Household.* University of Chicago Press, Chicago.

Lefkowitz, D., and Monheit, A. 1991. *Health Insurance, Use of Health Services, and Health Care Expenditures.* National Medical Expenditure Survey Research Findings 12. U.S. Department of Health and Human Services, Public Health Service, Agency for Health Care Policy and Research Publication No. 92-0017.

Lino, M. and Johnson, D.S. 1995. Housing, transportation, and miscellaneous expenditures on children: A comparison of methodologies. *Family Economics Review* 8(*1*): 2-12.

McDonald, J.F., and Moffitt, R.A. 1980. The uses of Tobit analysis. *The Review of Economics and Statistics* 62(*2*):318-321.

Phoenix Home Life Mutual Insurance Company. 1996. *Americans' Hopes, Fears and Dreams.* 1996 Phoenix Fiscal Fitness Survey.

Rothbarth, E. 1943. Notes on a method of determining equivalent income for families of different composition. *In:* C. Madge, ed., *War-Time Pattern of Spending and Saving.* National Institute for Economic and Social Research, Cambridge University Press, Cambridge.

Spalter-Roth, R.M. and Hartmann, H.I. 1990. *Unnecessary Losses: Costs to Americans of the Lack of Family and Medical Leave.* Institute for Women's Policy Research, Washington, DC.

U.S. Department of Agriculture, Agricultural Research Service. 1994. Cost of food at home. *Family Economics Review* 7*(4)*:45.

U.S. Department of Agriculture, Agricultural Research Service. 1981. *USDA Estimates of the Cost of Raising a Child: A Guide to Their Use and Interpretation.* Miscellaneous Publication No. 1411.

U.S. Department of Commerce, Bureau of the Census. 1996. *Statistical Abstract of the United States, 1996, 116th ed.*

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. 1990. *Estimates of Expenditures on Children and Child Support Guidelines.*

U.S. Department of Transportation, Federal Highway Administration. 1994. *1990 Nationwide Personal Transportation Study.*

## Appendix
### Allocating Selected Expenditures Using Marginal Cost Methods

The USDA utilizes the per capita approach rather than a marginal cost approach in allocating housing, transportation, and miscellaneous expenditures to children in a household. A USDA study (Lino and Johnson 1995) examined how these expenses would be allocated using three different marginal cost approaches. Using data from the 1990 CE, the USDA study derived the share of expenditures allocated to children from the marginal cost methods and applied them to housing, transportation, and miscellaneous expenses for married-couple families with two children with the focus being on the younger child. The three marginal cost methods were the Engel, Rothbarth, and Barten-Gorman estimators. Each of these estimators measure expenditures on children as the difference in expenses between couples with children and equivalent childless couples. However, they differ on how to determine the equivalency between couples.

The Engel estimator is based on work done in the 19th century (see U.S. Department of Health and Human Services 1990 for a summary of Engel's work). It postulates that the percentage of a family's total expenditures allocated to food—their food share—is a measure of well-being. Families with the same food share are assumed to be equally well-off. The Rothbarth estimator, which is based on work done in the 1940's (Rothbarth 1943), postulates that the well-being of families can be determined by the level of excess income available to them after necessary expenditures are met. Although Rothbarth defined excess income to include luxuries and savings, the USDA study used expenditures on adult clothing, alcohol, and tobacco as the measure of well-being. Other studies applying the Rothbarth method have used a similar definition (Lazear and Michael 1988, U.S. Department of Health and Human Services 1990). Whereas the Engel and Rothbarth methods use a proxy for the well-being of a household, the Barten-Gorman method uses a more general utility function to measure it (see Lino and Johnson 1995 for more detail). Individual budgetary-component shares attributable to children are derived with this method.

The Rothbarth method produced unrealistically low estimates of expenditures on children, which was probably due to the measure of well-being used in the study. Rothbarth defined the measure of well-being as excess income, which included expenses on luxuries and savings. As the CE does not have a direct measure of excess income, a proxy had to be used (expenditures on adult clothing, alcohol, and tobacco). Because of this problem, results from the Rothbarth method were discounted.

The Engel method produced estimates of expenditures on a child for housing and miscellaneous goods and services that were 28 percent below those produced by the USDA per capita method. The Barten-Gorman method produced estimates for housing expenses that were 44 percent below the per capita method and estimates for expenses on miscellaneous goods and services that were 28 percent below the per capita method. For transportation expenses on a child, the Engel and Barten-Gorman methods produced estimates that were higher than the USDA per capita method because the latter excludes the proportion of household transportation expenses that are employment related. Estimates of transportation expenses on a child using the Engel method were 19 percent above the USDA estimates, and those using the Barten-Gorman method were 26 percent above the USDA estimates.

If the Engel or Barten-Gorman methods are preferred over the per capita method for estimating child-rearing expenses for housing, transportation, or miscellaneous goods and services, the expense estimates produced by USDA could be adjusted by the percentages given above. For example, if the Engel approach is believed to be more appropriate for measuring housing expenses on a child than the USDA per capita approach, the USDA expense estimates for housing should be reduced by 28 percent; or if the Engel approach is believed to be more appropriate for measuring transportation expenses on a child, the USDA expense estimates for transportation should be increased by 19 percent.

The USDA study (Lino and Johnson 1995) concluded the marginal cost methods described here are not more appropriate than the per capita method in estimating child-rearing expenses for these three budgetary components. The marginal cost methods have limitations that are equal to or exceed those of the per capita method. As previously explained, each version of the marginal cost method assumes a "true equivalency measure." The assumption that families who spend the same proportion of their total expenditures on food are equally well-off has never been proven, nor has the supposition that families behave according to a specific utility function. Also, the marginal cost method theorizes the difference in total expenditures between couples with and without children can be attributed solely to the children in a family. This has never been proven either.

The marginal cost approach was not applied to the housing, transportation, and miscellaneous expenses of single-parent families as the selection of a comparison group was too difficult. Single parents with children face circumstances that are very different from those faced by single people. Most single parents are mothers with low family incomes. Single people include many professionals with high incomes and high expenditures. Comparing the two groups could lead to the illogical finding that expenses on children are negative.

It should be noted that the equivalency measures obtained from the Engel and Rothbarth techniques in the HHS study described in the section "Alternative Estimates of Expenditures on Children" differ from those obtained in the USDA study using the same techniques. Both techniques yielded lower estimates in the USDA study than in the HHS study. Different results from the two studies may be caused by: (1) controlling for more variables, such as race, parents' education, etc., when the HHS study estimated its equivalency measures, and (2) the different years of data used in the two studies.

**Table 1. Estimated annual expenditures* on a child by husband-wife families, overall United States, 1997**

| Age of child | Total | Housing | Food | Transportation | Clothing | Health care | Child care and education | Miscellaneous† |
|---|---|---|---|---|---|---|---|---|
| **Before-tax income: Less than $35,500 (Average=$22,100)** | | | | | | | | |
| 0-2 | $5,820 | $2,220 | $830 | $730 | $370 | $400 | $690 | $580 |
| 3-5 | 5,920 | 2,190 | 920 | 700 | 360 | 380 | 780 | 590 |
| 6-8 | 6,070 | 2,120 | 1,190 | 820 | 410 | 440 | 460 | 630 |
| 9-11 | 6,090 | 1,910 | 1,420 | 890 | 450 | 480 | 280 | 660 |
| 12-14 | 6,880 | 2,130 | 1,490 | 1,000 | 760 | 480 | 200 | 820 |
| 15-17 | 6,790 | 1,720 | 1,610 | 1,350 | 670 | 510 | 330 | 600 |
| Total | $112,710 | $36,870 | $22,380 | $16,470 | $9,060 | $8,070 | $8,220 | $11,640 |
| **Before-tax income: $35,500 to $59,700 (Average=$47,200)** | | | | | | | | |
| 0-2 | $8,060 | $3,000 | $990 | $1,090 | $440 | $520 | $1,130 | $890 |
| 3-5 | 8,270 | 2,970 | 1,140 | 1,060 | 430 | 500 | 1,260 | 910 |
| 6-8 | 8,350 | 2,900 | 1,460 | 1,180 | 480 | 570 | 810 | 950 |
| 9-11 | 8,320 | 2,700 | 1,710 | 1,250 | 530 | 620 | 530 | 980 |
| 12-14 | 9,050 | 2,920 | 1,730 | 1,360 | 890 | 620 | 390 | 1,140 |
| 15-17 | 9,170 | 2,500 | 1,920 | 1,720 | 790 | 660 | 660 | 920 |
| Total | $153,660 | $50,970 | $26,850 | $22,980 | $10,680 | $10,470 | $14,340 | $17,370 |
| **Before-tax income: More than $59,700 (Average=$89,300)** | | | | | | | | |
| 0-2 | $11,990 | $4,770 | $1,310 | $1,520 | $580 | $600 | $1,710 | $1,500 |
| 3-5 | 12,230 | 4,740 | 1,480 | 1,490 | 570 | 580 | 1,860 | 1,510 |
| 6-8 | 12,180 | 4,670 | 1,790 | 1,610 | 620 | 660 | 1,280 | 1,550 |
| 9-11 | 12,090 | 4,470 | 2,080 | 1,680 | 680 | 710 | 890 | 1,580 |
| 12-14 | 12,930 | 4,690 | 2,180 | 1,790 | 1,120 | 710 | 690 | 1,750 |
| 15-17 | 13,260 | 4,270 | 2,300 | 2,180 | 1,020 | 750 | 1,210 | 1,530 |
| Total | $224,040 | $82,830 | $33,420 | $30,810 | $13,770 | $12,030 | $22,920 | $28,260 |

*Estimates are based on 1990-92 Consumer Expenditure Survey data updated to 1997 dollars using the Consumer Price Index. The figures represent estimated expenses on the younger child in a two-child family. Estimates are about the same for the older child, so to calculate expenses for two children, figures should be summed for the appropriate age categories. To estimate expenses for an only child, multiply the total expense for the appropriate age category by 1.24. To estimate expenses for each child in a family with three or more children, multiply the total expense for each appropriate age category by 0.77. For expenses on all children in a family, these totals should be summed.

†Miscellaneous expenses include personal care items, entertainment, and reading materials.

**Table 2. Estimated annual expenditures* on a child by husband-wife families, urban West,† 1997**

| Age of child | Total | Housing | Food | Transportation | Clothing | Health care | Child care and education | Miscellaneous‡ |
|---|---|---|---|---|---|---|---|---|
| **Before-tax income: Less than $35,200 (Average=$22,000)** | | | | | | | | |
| 0-2 | $6,420 | $2,650 | $900 | $790 | $360 | $340 | $700 | $680 |
| 3-5 | 6,560 | 2,630 | 1,000 | 770 | 350 | 320 | 790 | 700 |
| 6-8 | 6,730 | 2,600 | 1,290 | 880 | 390 | 370 | 470 | 730 |
| 9-11 | 6,820 | 2,450 | 1,540 | 950 | 430 | 400 | 280 | 770 |
| 12-14 | 7,570 | 2,630 | 1,610 | 1,070 | 720 | 410 | 200 | 930 |
| 15-17 | 7,520 | 2,260 | 1,740 | 1,410 | 640 | 430 | 330 | 710 |
| Total | $124,860 | $45,660 | $24,240 | $17,610 | $8,670 | $6,810 | $8,310 | $13,560 |
| **Before-tax income: $35,200 to $59,300 (Average=$46,900)** | | | | | | | | |
| 0-2 | $8,670 | $3,410 | $1,060 | $1,160 | $420 | $460 | $1,160 | $1,000 |
| 3-5 | 8,900 | 3,390 | 1,220 | 1,140 | 410 | 440 | 1,280 | 1,020 |
| 6-8 | 8,990 | 3,350 | 1,560 | 1,250 | 460 | 500 | 820 | 1,050 |
| 9-11 | 9,030 | 3,210 | 1,840 | 1,310 | 510 | 540 | 530 | 1,090 |
| 12-14 | 9,720 | 3,390 | 1,840 | 1,440 | 850 | 550 | 400 | 1,250 |
| 15-17 | 9,900 | 3,020 | 2,050 | 1,790 | 750 | 580 | 680 | 1,030 |
| Total | $165,630 | $59,310 | $28,710 | $24,270 | $10,200 | $9,210 | $14,610 | $19,320 |
| **Before-tax income: More than $59,300 (Average=$88,700)** | | | | | | | | |
| 0-2 | $12,450 | $5,040 | $1,370 | $1,600 | $550 | $540 | $1,760 | $1,590 |
| 3-5 | 12,740 | 5,030 | 1,550 | 1,580 | 540 | 520 | 1,910 | 1,610 |
| 6-8 | 12,680 | 4,990 | 1,870 | 1,680 | 590 | 590 | 1,320 | 1,640 |
| 9-11 | 12,630 | 4,840 | 2,180 | 1,750 | 640 | 630 | 910 | 1,680 |
| 12-14 | 13,430 | 5,020 | 2,280 | 1,870 | 1,070 | 640 | 710 | 1,840 |
| 15-17 | 13,800 | 4,650 | 2,400 | 2,250 | 960 | 670 | 1,240 | 1,630 |
| Total | $233,190 | $88,710 | $34,950 | $32,190 | $13,050 | $10,770 | $23,550 | $29,970 |

*Estimates are based on 1990-92 Consumer Expenditure Survey data updated to 1997 dollars using the regional Consumer Price Index. The figures represent estimated expenses on the younger child in a two-child family. Estimates are about the same for the older child, so to calculate expenses for two children, figures should be summed for the appropriate age categories. To estimate expenses for an only child, multiply the total expense for the appropriate age category by 1.24. To estimate expenses for each child in a family with three or more children, multiply the total expense for each appropriate age category by 0.77. For expenses on all children in a family, these totals should be summed.

†The Western region consists of Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

‡Miscellaneous expenses include personal care items, entertainment, and reading materials.

**Table 3. Estimated annual expenditures* on a child by husband-wife families, urban Northeast,† 1997**

| Age of child | Total | Housing | Food | Transportation | Clothing | Health care | Child care and education | Miscellaneous‡ |
|---|---|---|---|---|---|---|---|---|
| **Before-tax income: Less than $35,300 (Average=$22,000)** | | | | | | | | |
| 0-2 | $6,100 | $2,650 | $930 | $610 | $400 | $390 | $560 | $560 |
| 3-5 | 6,210 | 2,640 | 1,020 | 580 | 390 | 370 | 630 | 580 |
| 6-8 | 6,420 | 2,600 | 1,310 | 690 | 430 | 420 | 360 | 610 |
| 9-11 | 6,570 | 2,450 | 1,570 | 760 | 480 | 450 | 210 | 650 |
| 12-14 | 7,390 | 2,630 | 1,640 | 880 | 820 | 460 | 150 | 810 |
| 15-17 | 7,300 | 2,260 | 1,760 | 1,220 | 720 | 490 | 250 | 600 |
| Total | $119,970 | $45,690 | $24,690 | $14,220 | $9,720 | $7,740 | $6,480 | $11,430 |
| **Before-tax income: $35,300 to $59,300 (Average=$46,900)** | | | | | | | | |
| 0-2 | $8,280 | $3,410 | $1,080 | $980 | $470 | $510 | $950 | $880 |
| 3-5 | 8,500 | 3,390 | 1,240 | 960 | 460 | 490 | 1,060 | 900 |
| 6-8 | 8,660 | 3,360 | 1,580 | 1,060 | 510 | 560 | 660 | 930 |
| 9-11 | 8,740 | 3,210 | 1,850 | 1,130 | 560 | 600 | 420 | 970 |
| 12-14 | 9,520 | 3,390 | 1,860 | 1,260 | 950 | 610 | 310 | 1,140 |
| 15-17 | 9,620 | 3,020 | 2,060 | 1,610 | 850 | 640 | 520 | 920 |
| Total | $159,960 | $59,340 | $29,010 | $21,000 | $11,400 | $10,230 | $11,760 | $17,220 |
| **Before-tax income: More than $59,300 (Average=$88,800)** | | | | | | | | |
| 0-2 | $12,010 | $5,050 | $1,380 | $1,420 | $610 | $600 | $1,480 | $1,470 |
| 3-5 | 12,260 | 5,030 | 1,560 | 1,400 | 590 | 570 | 1,620 | 1,490 |
| 6-8 | 12,300 | 4,990 | 1,880 | 1,510 | 650 | 650 | 1,090 | 1,530 |
| 9-11 | 12,320 | 4,840 | 2,190 | 1,580 | 710 | 700 | 740 | 1,560 |
| 12-14 | 13,190 | 5,020 | 2,280 | 1,700 | 1,180 | 710 | 570 | 1,730 |
| 15-17 | 13,430 | 4,650 | 2,410 | 2,070 | 1,070 | 740 | 980 | 1,510 |
| Total | $226,530 | $88,740 | $35,100 | $29,040 | $14,430 | $11,910 | $19,440 | $27,870 |

*Estimates are based on 1990-92 Consumer Expenditure Survey data updated to 1997 dollars using the regional Consumer Price Index. The figures represent estimated expenses on the younger child in a two-child family. Estimates are about the same for the older child, so to calculate expenses for two children, figures should be summed for the appropriate age categories. To estimate expenses for an only child, multiply the total expense for the appropriate age category by 1.24. To estimate expenses for each child in a family with three or more children, multiply the total expense for each appropriate age category by 0.77. For expenses on all children in a family, these totals should be summed.

†The Northeast region consists of Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

‡Miscellaneous expenses include personal care items, entertainment, and reading materials.

**Table 4. Estimated annual expenditures* on a child by husband-wife families, urban South,† 1997**

| Age of child | Total | Housing | Food | Transportation | Clothing | Health care | Child care and education | Miscellaneous‡ |
|---|---|---|---|---|---|---|---|---|
| **Before-tax income: Less than $35,600 (Average=$22,200)** | | | | | | | | |
| 0-2 | $5,890 | $2,190 | $800 | $720 | $400 | $450 | $780 | $550 |
| 3-5 | 6,030 | 2,170 | 900 | 700 | 390 | 430 | 870 | 570 |
| 6-8 | 6,140 | 2,130 | 1,160 | 800 | 430 | 490 | 530 | 600 |
| 9-11 | 6,220 | 1,980 | 1,410 | 870 | 480 | 520 | 320 | 640 |
| 12-14 | 7,020 | 2,170 | 1,470 | 1,000 | 800 | 540 | 230 | 810 |
| 15-17 | 6,970 | 1,790 | 1,600 | 1,330 | 710 | 560 | 390 | 590 |
| Total | $114,810 | $37,290 | $22,020 | $16,260 | $9,630 | $8,970 | $9,360 | $11,280 |
| **Before-tax income: $35,600 to $60,000 (Average=$47,400)** | | | | | | | | |
| 0-2 | $8,220 | $2,960 | $970 | $1,090 | $470 | $590 | $1,270 | $870 |
| 3-5 | 8,440 | 2,940 | 1,120 | 1,070 | 460 | 560 | 1,400 | 890 |
| 6-8 | 8,500 | 2,910 | 1,430 | 1,170 | 510 | 640 | 910 | 930 |
| 9-11 | 8,500 | 2,760 | 1,700 | 1,240 | 560 | 680 | 600 | 960 |
| 12-14 | 9,210 | 2,940 | 1,710 | 1,360 | 930 | 690 | 450 | 1,130 |
| 15-17 | 9,420 | 2,560 | 1,910 | 1,720 | 830 | 720 | 770 | 910 |
| Total | $156,870 | $51,210 | $26,520 | $22,950 | $11,280 | $11,640 | $16,200 | $17,070 |
| **Before-tax income: More than $60,000 (Average=$89,700)** | | | | | | | | |
| 0-2 | $12,080 | $4,630 | $1,270 | $1,530 | $610 | $680 | $1,890 | $1,470 |
| 3-5 | 12,360 | 4,610 | 1,450 | 1,510 | 600 | 650 | 2,050 | 1,490 |
| 6-8 | 12,280 | 4,580 | 1,750 | 1,610 | 650 | 740 | 1,430 | 1,520 |
| 9-11 | 12,200 | 4,420 | 2,040 | 1,680 | 710 | 780 | 1,010 | 1,560 |
| 12-14 | 13,020 | 4,610 | 2,140 | 1,800 | 1,160 | 800 | 790 | 1,720 |
| 15-17 | 13,440 | 4,230 | 2,260 | 2,170 | 1,060 | 820 | 1,390 | 1,510 |
| Total | $226,140 | $81,240 | $32,730 | $30,900 | $14,370 | $13,410 | $25,680 | $27,810 |

*Estimates are based on 1990-92 Consumer Expenditure Survey data updated to 1997 dollars using the regional Consumer Price Index. The figures represent estimated expenses on the younger child in a two-child family. Estimates are about the same for the older child, so to calculate expenses for two children, figures should be summed for the appropriate age categories. To estimate expenses for an only child, multiply the total expense for the appropriate age category by 1.24. To estimate expenses for each child in a family with three or more children, multiply the total expense for each appropriate age category by 0.77. For expenses on all children in a family, these totals should be summed.

†The Southern region consists of Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia.

‡Miscellaneous expenses include personal care items, entertainment, and reading materials.

**Table 5. Estimated annual expenditures* on a child by husband-wife families, urban Midwest,† 1997**

| Age of child | Total | Housing | Food | Transportation | Clothing | Health care | Child care and education | Miscellaneous‡ |
|---|---|---|---|---|---|---|---|---|
| **Before-tax income: Less than $35,700 (Average=$22,300)** | | | | | | | | |
| 0-2 | $5,270 | $1,970 | $760 | $640 | $350 | $360 | $670 | $520 |
| 3-5 | 5,400 | 1,960 | 850 | 620 | 340 | 340 | 750 | 540 |
| 6-8 | 5,540 | 1,920 | 1,100 | 720 | 380 | 390 | 450 | 580 |
| 9-11 | 5,640 | 1,770 | 1,340 | 790 | 430 | 430 | 270 | 610 |
| 12-14 | 6,400 | 1,950 | 1,400 | 920 | 720 | 440 | 190 | 780 |
| 15-17 | 6,330 | 1,570 | 1,530 | 1,260 | 630 | 460 | 320 | 560 |
| Total | $103,740 | $33,420 | $20,940 | $14,850 | $8,550 | $7,260 | $7,950 | $10,770 |
| **Before-tax income: $35,700 to $60,100 (Average=$47,500)** | | | | | | | | |
| 0-2 | $7,540 | $2,740 | $920 | $1,010 | $420 | $490 | $1,110 | $850 |
| 3-5 | 7,760 | 2,730 | 1,070 | 990 | 410 | 460 | 1,230 | 870 |
| 6-8 | 7,830 | 2,690 | 1,370 | 1,100 | 450 | 530 | 790 | 900 |
| 9-11 | 7,870 | 2,540 | 1,640 | 1,170 | 500 | 570 | 510 | 940 |
| 12-14 | 8,560 | 2,720 | 1,640 | 1,290 | 850 | 580 | 380 | 1,100 |
| 15-17 | 8,720 | 2,340 | 1,840 | 1,650 | 750 | 600 | 650 | 890 |
| Total | $144,840 | $47,280 | $25,440 | $21,630 | $10,140 | $9,690 | $14,010 | $16,650 |
| **Before-tax income: More than $60,100 (Average=$89,900)** | | | | | | | | |
| 0-2 | $11,350 | $4,410 | $1,230 | $1,460 | $550 | $570 | $1,690 | $1,440 |
| 3-5 | 11,620 | 4,390 | 1,400 | 1,440 | 540 | 550 | 1,840 | 1,460 |
| 6-8 | 11,550 | 4,350 | 1,690 | 1,540 | 590 | 620 | 1,260 | 1,500 |
| 9-11 | 11,500 | 4,200 | 1,980 | 1,610 | 640 | 660 | 870 | 1,540 |
| 12-14 | 12,330 | 4,390 | 2,070 | 1,740 | 1,070 | 680 | 680 | 1,700 |
| 15-17 | 12,650 | 4,010 | 2,190 | 2,110 | 970 | 700 | 1,190 | 1,480 |
| Total | $213,000 | $77,250 | $31,680 | $29,700 | $13,080 | $11,340 | $22,590 | $27,360 |

*Estimates are based on 1990-92 Consumer Expenditure Survey data updated to 1997 dollars using the regional Consumer Price Index. The figures represent estimated expenses on the younger child in a two-child family. Estimates are about the same for the older child, so to calculate expenses for two children, figures should be summed for the appropriate age categories. To estimate expenses for an only child, multiply the total expense for the appropriate age category by 1.24. To estimate expenses for each child in a family with three or more children, multiply the total expense for each appropriate age category by 0.77. For expenses on all children in a family, these totals should be summed.

†The Midwest region consists of Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

‡Miscellaneous expenses include personal care items, entertainment, and reading materials.

**Table 6. Estimated annual expenditures* on a child by husband-wife families, Rural areas,† 1997**

| Age of child | Total | Housing | Food | Transportation | Clothing | Health care | Child care and education | Miscellaneous‡ |
|---|---|---|---|---|---|---|---|---|
| **Before-tax income: Less than $35,900 (Average=$22,400)** | | | | | | | | |
| 0-2 | $5,310 | $1,660 | $770 | $830 | $360 | $440 | $700 | $550 |
| 3-5 | 5,460 | 1,650 | 870 | 810 | 350 | 420 | 790 | 570 |
| 6-8 | 5,600 | 1,610 | 1,130 | 920 | 390 | 480 | 470 | 600 |
| 9-11 | 5,690 | 1,450 | 1,370 | 990 | 440 | 520 | 280 | 640 |
| 12-14 | 6,460 | 1,640 | 1,430 | 1,110 | 750 | 530 | 200 | 800 |
| 15-17 | 6,410 | 1,260 | 1,560 | 1,460 | 660 | 550 | 330 | 590 |
| Total | $104,790 | $27,810 | $21,390 | $18,360 | $8,850 | $8,820 | $8,310 | $11,250 |
| **Before-tax income: $35,900 to $60,400 (Average=$47,800)** | | | | | | | | |
| 0-2 | $7,640 | $2,450 | $940 | $1,210 | $430 | $580 | $1,160 | $870 |
| 3-5 | 7,850 | 2,430 | 1,090 | 1,180 | 420 | 550 | 1,290 | 890 |
| 6-8 | 7,900 | 2,390 | 1,390 | 1,290 | 460 | 630 | 820 | 920 |
| 9-11 | 7,950 | 2,240 | 1,660 | 1,360 | 520 | 670 | 540 | 960 |
| 12-14 | 8,630 | 2,420 | 1,660 | 1,480 | 870 | 680 | 400 | 1,120 |
| 15-17 | 8,820 | 2,040 | 1,860 | 1,840 | 780 | 710 | 680 | 910 |
| Total | $146,370 | $41,910 | $25,800 | $25,080 | $10,440 | $11,460 | $14,670 | $17,010 |
| **Before-tax income: More than $60,400 (Average=$90,500)** | | | | | | | | |
| 0-2 | $11,470 | $4,130 | $1,240 | $1,650 | $560 | $670 | $1,760 | $1,460 |
| 3-5 | 11,750 | 4,120 | 1,410 | 1,630 | 550 | 640 | 1,920 | 1,480 |
| 6-8 | 11,680 | 4,080 | 1,710 | 1,730 | 600 | 730 | 1,320 | 1,510 |
| 9-11 | 11,630 | 3,930 | 2,000 | 1,800 | 660 | 770 | 920 | 1,550 |
| 12-14 | 12,450 | 4,110 | 2,100 | 1,930 | 1,100 | 790 | 710 | 1,710 |
| 15-17 | 12,800 | 3,730 | 2,220 | 2,310 | 990 | 810 | 1,240 | 1,500 |
| Total | $215,340 | $72,300 | $32,040 | $33,150 | $13,380 | $13,230 | $23,610 | $27,630 |

Estimates are based on 1990-92 Consumer Expenditure Survey data updated to 1997 dollars using the population size Consumer Price Index. The figures represent estimated expenses on the younger child in a two-child family. Estimates are about the same for the older child, so to calculate expenses for two children, figures should be summed for the appropriate age categories. To estimate expenses for an only child, multiply the total expense for the appropriate age category by 1.24. To estimate expenses for each child in a family with three or more children, multiply the total expense for each appropriate age category by 0.77. For expenses on all children in a family, these totals should be summed.

†Rural areas are places of fewer than 2,500 people outside a Metropolitan Statistical Area.

‡Miscellaneous expenses include personal care items, entertainment, and reading materials.

**Table 7. Estimated annual expenditures* on a child by single-parent families, overall United States, 1997**

| Age of child | Total | Housing | Food | Transportation | Clothing | Health care | Child care and education | Miscellaneous† |
|---|---|---|---|---|---|---|---|---|
| **Before-tax income: Less than $35,500 (Average=$14,800)** | | | | | | | | |
| 0-2 | $4,900 | $1,990 | $920 | $680 | $340 | $190 | $430 | $350 |
| 3-5 | 5,510 | 2,260 | 960 | 600 | 360 | 280 | 590 | 460 |
| 6-8 | 6,230 | 2,410 | 1,220 | 690 | 420 | 330 | 540 | 620 |
| 9-11 | 5,820 | 2,310 | 1,410 | 500 | 430 | 420 | 260 | 490 |
| 12-14 | 6,270 | 2,310 | 1,410 | 580 | 720 | 450 | 320 | 480 |
| 15-17 | 6,970 | 2,450 | 1,540 | 900 | 840 | 440 | 250 | 550 |
| Total | $107,100 | $41,190 | $22,380 | $11,850 | $9,330 | $6,330 | $7,170 | $8,850 |
| **Before-tax income: $35,500 or more (Average=$53,900)** | | | | | | | | |
| 0-2 | $11,210 | $4,290 | $1,410 | $2,080 | $480 | $440 | $1,060 | $1,450 |
| 3-5 | 12,030 | 4,560 | 1,500 | 2,000 | 500 | 590 | 1,330 | 1,550 |
| 6-8 | 12,800 | 4,700 | 1,800 | 2,090 | 580 | 680 | 1,240 | 1,710 |
| 9-11 | 12,380 | 4,610 | 2,160 | 1,900 | 580 | 810 | 730 | 1,590 |
| 12-14 | 13,120 | 4,610 | 2,120 | 1,970 | 960 | 860 | 1,030 | 1,570 |
| 15-17 | 13,580 | 4,750 | 2,240 | 2,140 | 1,110 | 850 | 840 | 1,650 |
| Total | $225,360 | $82,560 | $33,690 | $36,540 | $12,630 | $12,690 | $18,690 | $28,560 |

*Estimates are based on 1990-92 Consumer Expenditure Survey data updated to 1997 dollars using the Consumer Price Index. The figures represent estimated expenses on the younger child in a single-parent, two-child family. For estimated expenses on the older child, multiply the total expense for the appropriate age category by 0.93. To estimate expenses for two children, the expenses on the younger child and older child—after adjusting the expense on the older child downward—should be summed for the appropriate age categories. To estimate expenses for an only child, multiply the total expense for the appropriate age category by 1.35. To estimate expenses for each child in a family with three or more children, multiply the total expense for each appropriate age category by 0.72—after adjusting the expenses on the older children downward. For expenses on all children in a family, these totals should be summed.

†Miscellaneous expenses include personal care items, entertainment, and reading materials.

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